Current Sensor

Product Series:	STK-BS/T
Part number:	STK-200BS/T & STK-400BS/T & STK-500BS/T & STK-600BS/T & STK-800BS/T & STK-1000BS/T & STK-1200BS/T & STK-1500BS/T
VERSION：	Ver 2.5

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CONTENT

1. Introduction

STK-BS/T series current sensor is based on Hall, and it has an open-loop design. It is suitable for DC, AC pulsed and any kind of irregular current measurement under the isolated conditions.

Typical applications

- Battery supplied applications
- Electric welder power supply
- Motor driver
- UPS

General parameter

Parameter	Symbol	Unit	Value
Working temperature	T_A	℃	-40 ~ 85
Storage temperature	T_stg	℃	-40 ~ 85
Mass	m	g	300

Absolute maximum rating

Parameter	Symbol	Unit	Value
Supply voltage （not-destructive）	V_{CC}	V	±18
ESD rating（HBM）	U_{ESD}	kV	4

Remark: the unrecoverable damage may occur when the product works on the conditions over the absolute maximum ratings. Long-time working on the absolute maximum ratings may cause the degradation on performance and reliability.

Isolation parameter

Parameter	Symbol	Unit	Value	Comment
RMS voltage for AC test 50Hz/1 min	Ud	kV	4.9	
Clearance distance (pri. -sec)	dCl	mm	7.9	Shortest distance through air
Creepage distance (pri. -sec)	dCp	mm	16	Shortest path along device body
Case material			V0 according to UL 94	

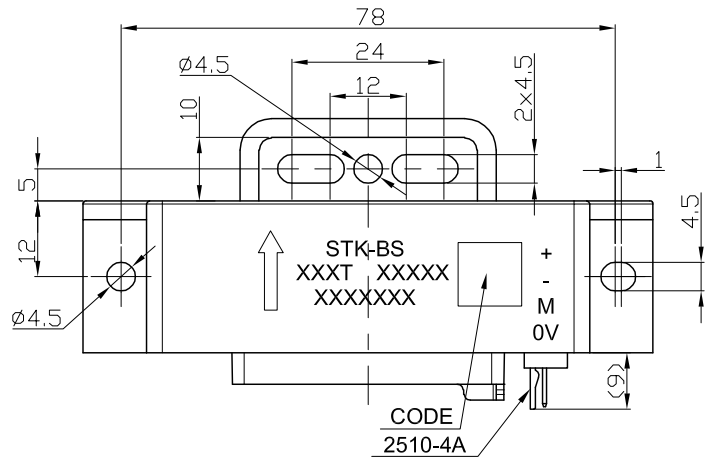
2. Electrical Data

Condition：T_A = 25℃，Vcc = ±12~ ± 15V

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary nominal current	I_{PN}	A		200		STK-200BS/T
				400		STK-400BS/T
				500		STK-500BS/T
				600		STK-600BS/T
				800		STK-800BS/T
				1000		STK-1000BS/T
				1200		STK-1200BS/T
				1500		STK-1500BS/T
Current range (refer remark)	I_{PM}	A	-600		600	STK-200BS/T
			-1200		1200	STK-400BS/T
			-1500		1500	STK-500BS/T
			-1800		1800	STK-600BS/T
			-2400		2400	STK-800BS/T
			-2500		2500	STK-1000BS/T
			-2500		2500	STK-1200BS/T
			-2500		2500	STK-1500BS/T
Supply voltage	Vcc	V		±12~ ±15		STK-200BS/T STK-400BS/T STK-500BS/T STK-600BS/T STK-800BS/T STK-1000BS/T STK-1200BS/T STK-1500BS/T
Current consumption	Icc	mA		±20		All
Quiescent voltage Vout @ 0 A	Voff	V	-0.04	0	0.04	STK-200BS/T STK-400BS/T STK-500BS/T STK-600BS/T STK-800BS/T STK-1000BS/T STK-1200BS/T STK-1500BS/T
Peak output voltage (Vout @ $\pm I_{PN}$) – Voff	V_FS	V		± 4		STK-200BS/T STK-400BS/T STK-500BS/T STK-600BS/T

						STK-800BS/T STK-1000BS/T STK-1200BS/T STK-1500BS/T
Internal output resistance	R_out	Ω		100		Vout
Theoretical gain (Typ)	G_th	mV/A		20		STK-200BS/T
				10		STK-400BS/T
				8		STK-500BS/T
				6.66		STK-600BS/T
				5		STK-800BS/T
				4		STK-1000BS/T
				3.33		STK-1200BS/T
				2.66		STK-1500BS/T
Rated linearity error	Non-L	% I_{PN}		± 1		±I_{PN}
Step response time	t_res	μs		5		@90% of I_{PN}
Frequency bandwidth (-3dB)	BW	kHz		25		No RC circuit
Output voltage noise DC ~ 10 kHz DC ~ 100 kHz	Vnoise	mVpp		 20 30		STK-200BS/T STK-400BS/T STK-500BS/T STK-600BS/T STK-800BS/T STK-1000BS/T STK-1200BS/T STK-1500BS/T
Accuracy @ 25℃	X	% of I_{PN}		±1		All
Temperature coefficient of V_{OE}	TCV_{OE}	mV/K		±1		@ -40℃~ 85℃
Temperature coefficient of V_{OUT}	TCV_{OUT}	%/K		±0.1		@ -40℃~85℃

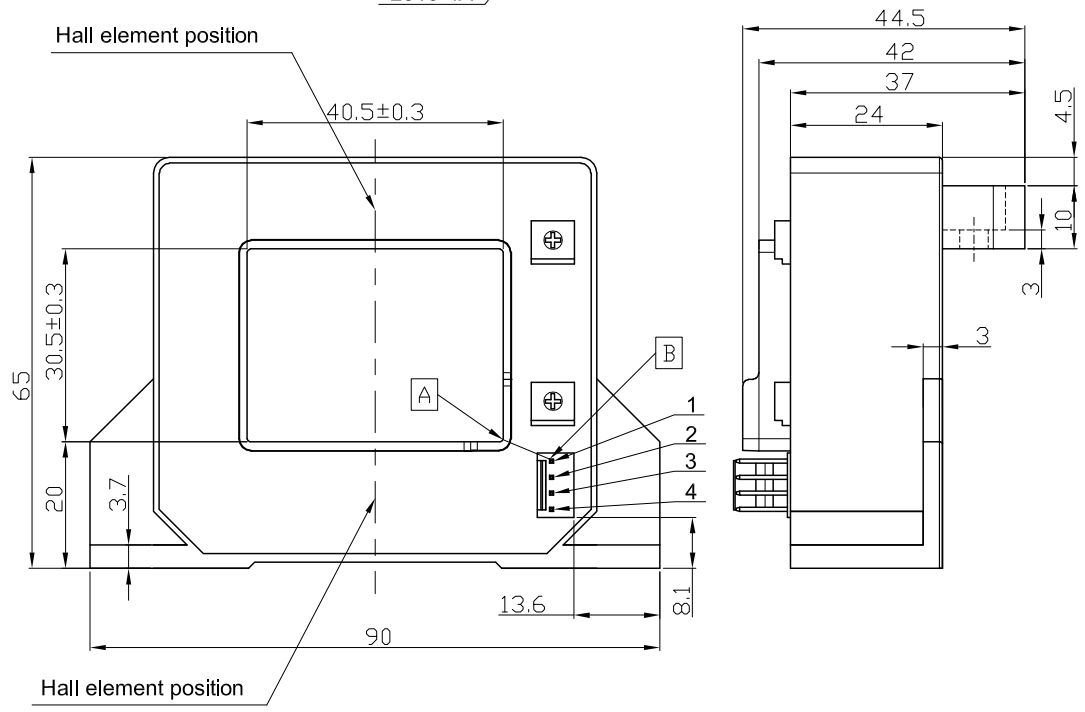
3. Dimension & Pin Definitions



Terminals

1	+
2	-
3	M
4	0V

Current Direction



	d_{cl}	d_{cp}
A-B	7.9 mm	16 mm

Material : Fit UL94V-0 & RoHS requirements ;
General tolerance : ±0.5
Unit :mm